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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,403

06/23/2005

Roger Griffiths

21.1066

9606

23718 7590 07/09/2007  
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EXAMINER

SAINT SURIN, JACQUES M

ART UNIT

PAPER NUMBER

2856

MAIL DATE

DELIVERY MODE

07/09/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/540,403	GRIFFITHS ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Jacques M. Saint-Surin	2856	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 24 April 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

**DETAILED ACTION**

***Response to Amendment***

1. This Office Action is responsive to the amendment of 04/24/07.

***Response to Arguments***

2. Applicant's arguments filed 04/24/07 have been fully considered but they are not persuasive.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 102***

4. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Reynolds (US Patent 4,008,608) or Warner (EP 0657622 B1).

Regarding claims 1 and 9, Reynolds discloses a method for determining a velocity of ultrasound propagation in a drilling fluid in a downhole environment (col. 1, lines 60-67), comprising:

disposing a first ultrasound transducer (32) adjacent to a second ultrasound

transducer (34) such that the front face of the first transducer (32) is offset from the front face of the second ultrasound transducer (34) by a predetermined radial offset distance (col. 2, lines 39-41 and col. 3, lines 41-49).

emitting an ultrasound pulse into the drilling fluid in a borehole (28) using the first ultrasound transducer (32);

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detecting (34) the ultrasound pulse after the ultrasound pulse has travelled through the drilling fluid a distance;

determining a travel time (t) for the ultrasound pulse to travel the distance (d)

(col. 3, lines 40-44); and

determining the velocity of ultrasound propagation from the distance and the travel time (col. 2, lines 67-68, col. 3, lines 1-3 and 44-48).

Regarding claim 9, it is similar in scope with claim 1 and therefore, it is rejected for the reasons set forth for that claim. Furthermore, Reynolds discloses the signals

received by first receiving transducer 34 and second receiving transducer 38 are transmitted up borehole 28 via conductor cable 30 to recording equipment 48 at the surface. By noting the difference in arrival times at the two receiving transducers and

the distance separating the two receiving transducers, the velocity of the formation can be determined on a continuous basis from the top to the bottom of the well (col. 2, lines 63-68 and col. 3, lines 1-3).

Regarding claim 2, Reynolds discloses wherein the detecting the ultrasound pulse is performed with the first ultrasound transducer (32).

Regarding claim 3, Reynolds discloses wherein the detecting the ultrasound pulse is performed with the second ultrasound transducer (34).

Regarding claims 4-5, Reynolds discloses wherein the detecting the ultrasound pulse is performed with both the first and second ultrasound transducer (32, 34).

Reynolds further discloses arrival times at the two receiving transducers and the distance separating the two receiving transducers, the velocity of the formation can be determined on a continuous basis from the top to the bottom of the well (col. 2, lines 67-68 and col. 3, lines 1-3).

Regarding claim 6, Reynolds discloses wherein the detecting the ultrasound pulse is performed by the first ultrasound transducer (37), and wherein the method further comprises: emitting a second ultrasound pulse into the drilling fluid in the borehole using the second ultrasound transducer (34); and detecting the second ultrasound pulse ( col. 2, lines 52-58) after the second ultrasound pulse has traveled through the drilling fluid a using the second ultrasound transducer (34).

Regarding claim 7, Reynolds discloses wherein the ultrasound pulse and the second ultrasound pulse are emitted simultaneously (this function is inherently performed by Reynolds since it discloses two different transducers for transmitting acoustic waves or pulses).

Regarding claim 8, Reynolds discloses wherein the drilling fluid is located in an annulus between a tool (26) and a borehole wall (col. 2, lines 58-63).

Regarding claim 10, Reynolds discloses the apparatus according to claim 9, wherein the first ultrasound transducer (34) and the second ultrasound transducer (76) are disposed on an outside surface of the tool (20).

### ***Response to Arguments***

5. Applicant's arguments filed 04/24/07 have been fully considered but they are not persuasive. In response to Applicant's arguments "Reynolds is concerned with a different purpose, i.e. predicting the geothermal gradient (temperatures) of a formation (see: col. 1, lines 7 and 22 for example) and "However, Reynolds is concerned with measuring the velocity in the formation (see: col. 3, line 2) which is wholly different from the present application in that the preamble of both claims 1 and 9 clearly recites "for determining a velocity of ultrasound propagation in a drilling fluid", the Examiner agrees with Applicant's arguments. However, Reynolds teaches in col. 1, lines 9-11, More particularly, the invention relates to such a method useful in drilling wells through such subterranean formations. In addition, Reynolds further discloses since these waves travel at different speeds in the rock and fluid media, receiving transducers 34 and 38 record the wave which has followed the fastest path. This path is shown in FIG. 1 as path 42, that is the wave travels from transmitting transducer 32 through the borehole fluid, along the rock-borehole interface, and then portions of borehole wave travel back through the borehole fluid to each of the two receiving transducers 34 and 38 as shown by ray paths 44 and 46. Thus, based on the above paragraphs, Reynolds is not concerned only to measuring the velocity in the formation as argued by the applicant.

### ***Conclusion***

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6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacques M. Saint-Surin whose telephone number is (571) 272-2206. The examiner can normally be reached on Mondays to Fridays between 10:30 A.M and 800 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on (571) 272-2208. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For

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more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Jacques M. Saint-Surin

July 05, 2007

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
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